RESPONSE

Applicant wishes to thank the Examiner for considering the present application.

Status Of The Claims

The present application is a continuation of prior application bearing Serial Number 09/235,112. Claims 1-7 of the prior application have been continued in this application. Claim 1 has been herein amended along the same lines as Claim 1 in the prior application and Claims 2 and 3 have been herein canceled without prejudice. New claims 8-11 have been added by this Preliminary Amendment. Applicant has added no new matter to the application by these amendments.

Summary Of The Invention

The present invention has the advantages not realized, taught or suggested in the prior art. The present invention provides inclined eccentric geosynchronous orbits for a satellite system that advantageously enables a consistently high elevation angle from a service area. As will be discussed further below, the differences from the *Fowell* reference are highlighted by the fact that claim 1 recites "an operating arc defined by a subset of points on said skytrack over said service area, said satellite operating on said operating arc." To illustrate this point, the Examiner is directed to Figures 4 and 5. Figure 4 is from the perspective of space beyond the satellite looking back toward the Earth. An equirectangular-projection map 36 shows North America and a substantial portion of South America. An example ground track 32 is shown that is projected from the IEGO orbit. Two similar satellites, A & B, are shown sharing ground track 32 and are separated by a half a period. Active satellite A is about to start operation as it rises through a eastern handover point 38 (latitude, longitude = 24.0N, 83.0W). Satellite B is concurrently setting through a western handover point 40 (latitude, longitude = 24.0N, 109.0W). The distance between eastern handover point 38 and western handover point 40 is defined as the operating arc 44. The operating arc 44 is the portion of the ground track or a portion of the sky track (which remains in a cone overhead), when viewed from a point on the ground, over which the satellites operate.

From a different perspective the Examiner is directed to Figure 5 which illustrates a skyward looking plot of the orbital path as seen from the center of the service area as shown in Figure 4. On this plot, 0° represents the horizon while 90° represents the zenith over a particular point on the landmass. Handover points 38, 40 and operating arc 44 (the thick portion) are also shown in skyward plot 46.

Issue

The following issue is still outstanding from the final Office Action dated June 7, 2001 received for the prior application:

Whether claims 1 and 4-7 are patentable under 35 U.S.C. § 102(e) over *Fowell* (U.S. Patent No. 6,135,389, hereinafter, "*Fowell*").

Remarks

Claims 1 and 4-7 stand rejected under 35 USC §102(e) as being anticipated by *Fowell* (U.S. Patent No. 6,135,389). Applicant respectfully traverses this rejection.

The Examiner points to Cols. 1 and 2 of the *Fowell* reference for reciting the elements of claim 1. Applicant respectfully submits that each and every element of claim 1 is not found in the *Fowell* reference and therefore claim 1 is believed to be patentable over *Fowell*. The *Fowell* reference is directed to a subterranean target steering strategy for a satellite. However, in columns 1 and 2 the difference between geostationary orbits and geosynchronous orbits are described. As mentioned in Col. 2, beginning on line 8, "Due to the payload consequences for non-geostationary satellites, there is interest in keeping the orbit close to geostationary, and many geosynchronous satellites are kept within a latitude range of plus or minus six degrees in service, and within a longitude range of plus or minus 0.1 degrees at the equatorial plane crossing." The present invention has a substantially greater elevation angle than is taught or suggested in the *Fowell* reference. This is to obtain the advantageous results of providing a high elevation angle from the horizon. As is taught in the present application, examples are given above 50 degrees for the minimum elevation angle. These angles are now specifically recited in new claim 9, 10 and 11.

The angle is, however, not the only difference between claim 1 and the Fowell reference. Claim 1 recites an operating arc that is defined by a *subset* of points in the skytrack within the service area. The satellite operates during the operating arc.

The operating arc is less than the full skytrack, which is what is meant by the terms "subset of points." Applicant has added claim 8 which emphasizes the subset aspect of the claim.

The *Fowell* reference teaches operating a satellite during the full orbit to simulate geostationary orbits. The meaning of the clause quoted above illustrates that the *Fowell* reference is interested in maintaining a geosynchronous satellite near a geostationary orbit. When this is the case, the satellite will always be in view and therefore an operating arc less than the entire orbit is not needed or required. In other words, the satellite will be continuously operating.

Therefore, because each and every element of claim 1 is not recited in the *Fowell* reference, applicant respectfully believes that claim 1 is patentable. Likewise, because claims 4-7 and 8-11 recite more specific limitations to claim 1, these claims are also believed to be patentable over *Fowell* as well.

Conclusion

In light of the above amendments and remarks, applicant submits that all of the previous rejections are now overcome. The application is now believed in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments, which would place the application in better condition for allowance, he is respectfully requested to call the undersigned attorney.

Respectfully submitted,
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APPENDIX

MARKED-UP VERSION OF THE AMENDED CLAIM

Claim 1. (Once Amended) A satellite system [of inclined geosynchronous satellite orbits] above a landmass comprising:

a service area on a surface of the earth having a predetermined minimum elevation angle from the horizon;

a satellite having an eccentric, substantially 24-hour period geosynchronous orbit with respect to the earth and having a sky track when viewed from within said service area, said orbit being inclined relative to an equatorial plane of the earth; and

an operating arc defined by a subset of points on said sky track over said service area, said satellite operating on said operating arc.